

bodies for the location of the University College of South Wales and Monmouthshire. In their memorial the corporation of Cardiff promised that, in the event of Cardiff being selected, they would make adequate provision for the college.

The address continued:—"How they recognised their obligations is manifest by the noble site upon which we now stand. Your Royal Highness, by your presence here to-day, places the seal of your approval on the manner in which the corporation has redeemed the pledge which I, then as mayor, made in their name. We have had the good fortune to secure the services of an architect whose plans and designs have won the enthusiastic approval of educational experts. By the contributions of the people of South Wales and the splendid munificence of the Worshipful Drapers' Company, we are now in a position to build and maintain the arts, the administrative, and the research departments of the college. Our treasurer, to whom and to whose family we are so deeply indebted, trusts that this ceremony will prove such a stimulus to the patriotism of our people that the work now begun by Your Royal Highness will not cease until the whole scheme is completed."

During the course of his reply, the Prince of Wales remarked:—"As Chancellor of the University of Wales I am delighted to take part in this important ceremony and to lay the foundation-stone of the first block of what is hoped will some day grow into a building beautiful and dignified in design, complete and practical in its equipments. I congratulate you and all here present to-day in the proud fact that it is the liberality of the people of South Wales and Monmouthshire that makes it now possible to carry out a portion of the great scheme for the establishment in Cardiff of buildings worthy of their University College and worthy of the conception of its founders. I further note with great satisfaction that one of the largest of the London city companies has shown a practical sympathy in this great undertaking, and that the library buildings, one of the most important features in any college, will be the gift of the Worshipful Company of Drapers."

After referring to the fact that the site of the new buildings was formerly a monastic centre of learning, renowned at home and abroad, His Royal Highness continued:—"The new teaching and training differs in character from that which in the past rendered her colleges famous, for the Welsh people have determined that their university education shall be compatible with the modern wants of a new world. Its promoters and its authorities have recognised that this university should not exist merely for the purpose of the literary or the academic life, but should place itself in touch with and try to serve every form of intellectual activity, and to-day Cardiff is a constituent of the university, for under the charter the town council appoints two members of the university court, and by a standing ordinance of the town council the mayor is *ex officio* one of the members. So our university is by its constitution interwoven more closely perhaps than any other with the national life of the country; and this is no mere sentiment on the part of the people of Cardiff, for they have not only given this site for the college, but also presented to the university itself another site in this park and 6000*l.* for the erection of its registry."

The University College at Cardiff was founded in 1883 and incorporated in 1884, and is the largest of the three colleges constituting the University of Wales. It began with 150 students. In 1893 the number had increased to 347, and in 1903 to 647. Since its foundation the college has been housed in temporary quarters which used to be the premises of the Cardiff Infirmary. In 1895 the Government promised a grant of 20,000*l.* on condition that an equal amount was raised from private sources, and this was done. Then the Drapers' Company offered 10,000*l.*, which has subsequently been increased to 15,000*l.* The town gave the site, and altogether 132,000*l.* has been contributed. The total cost of the new buildings is estimated at 290,800*l.*, so that about 159,000*l.* is still required.

The conferring of degrees took place later in the day, and among the recipients of honours was Sir John Williams, upon whom the honorary D.Sc. was conferred.

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THE LIEGE MINING AND METALLURGICAL CONGRESS.

AT the International Congress of Mining, Metallurgy, Mechanics, and Applied Geology held at Liège on June 25 to July 1, of which a brief report was published in *NATURE* last week, numerous papers of great scientific interest were read.

In the geological section an important paper on the continuation of the Saarbrücken Coal-measures into the territory of Lorraine and of France was submitted by Mr. B. Schulz-Briesen (Düsseldorf). In recent years numerous coal discoveries have been made in the Saarbrücken field by the Prussian Government in an area that had been untouched up to the end of the last century, the beds of quicksand above the coal having proved an obstacle. In French Lorraine coal was discovered last year at a depth of 650 metres. A map accompanying the author's paper indicated the coal-bearing area that has been proved, and showed the vast economic importance of the discovery. The genesis of metalliferous deposits and of eruptive rocks formed the subject of a paper by Mr. Paul F. Chalon (Paris). He summed up the matter in the following rules:—primary metalliferous deposits are not met with in stratified rocks that are not traversed by eruptive or igneous rocks; rocks with a fragmental structure contain more metalliferous deposits than compact rocks; in extended areas traversed by eruptive rocks the deposits are never regularly or irregularly distributed, but are concentrated at one or more centres; metamorphic rocks indicating the vicinity of eruptive rocks are favourable for prospecting, particularly in mountainous districts. The geological structure of the mining district of Iglesias, in Sardinia, was described by Mr. G. Merlo. The district is one of considerable economic importance, there being 117 mines in operation, and the value of the mineral output is more than 21 million francs annually. The principal deposits are veins of galena and blende, and contact deposits of galena and calamine. The Palæozoic beds of the district are, in descending order, as follows:—(1) Monteponi sandstone; (2) Gonnessa schist of Silurian age; (3) Cambrian sandstone; (4) metalliferous limestone; (5) Malacalzetta slates. There are thus three horizons of the Cambrian system. The mineral deposits of the banks of the Meuse and of the east of the province of Liège were described by Mr. G. Lespineux. He showed that these calamine masses, like those of the Moresnet district, are not the results of erosion of mineral veins, but were formed in their present condition. The deposit of cinnabar at Monte Amiata, in Tuscany, was described by Mr. V. Spirek. The deposits occur exclusively in serpentine, and were divided by the author into four classes.

In the metallurgical section the papers read were mostly of a practical character. Mr. Hadfield gave a summary of his researches on the effect of the temperature of liquid air on the properties of steel. Mr. F. Jottrand described a method of cutting metals by a jet of oxygen. The oxyhydrogen blowpipe is directed against the portion to be cut, and heats it to whiteness. The hydrogen is then turned off, and a rapid current of pure oxygen cuts the metal. In practice two blowpipes are used simultaneously, one for heating and one for cutting. The double blowpipe moves at a velocity of 20 centimetres per minute in cutting a steel plate 15 mm. in thickness. The metal is cut almost as cleanly as with a saw. The width of the slit is not more than 2 mm. for plates 15 mm. thick, and is only 3 mm. for plates 100 mm. thick. In order to cut a plate 15 mm. thick there is required per metre cut 540 litres of hydrogen and 540 litres of oxygen, the operation lasting five minutes. Tubes and curved sections can also be cut. Mr. H. Hennebutte described the use of coal poor in agglutinating materials for the manufacture of coke. Mr. E. Bian gave an account of the methods of cleaning blast-furnace gases. Mr. P. Delville read a paper on the influence of titanium on iron and steel. The manufacture of blast-furnace slag cement was dealt with by Prof. H. Wedding and by Mr. C. de Schwarz. Mr. P. Acker described the new modifications of the open-hearth steel process. Mr. R. M. Daelen discussed the methods of obviating "piping" in steel ingots. Electric steel-making processes were dealt with by Mr. G. Gin and by Mr. R.

Pitaval. Mr. L. Guillet, Carnegie scholar of the Iron and Steel Institute, submitted an elaborate monograph on special steels. Of the nickel steels described, the most remarkable are Guillaume's *invar*, with 36 per cent. of nickel, with an elastic limit of 70 to 75 kg. per square mm., a breaking stress of 45 to 55 kg. per square mm., and an elongation of 35 to 25 per cent.; and *platinite*, with 46 per cent. of nickel, with an elastic limit of 60 to 70, a breaking stress of 30 to 40, and an elongation of 45 to 35 per cent. The latter is used instead of platinum in incandescent lamps. The paper summarises in an admirable manner the existing knowledge of nickel, manganese, chromium, tungsten, molybdenum, vanadium, silicon, and aluminium steels. Other papers read in this section dealt with the application of electricity in rolling mills, by Mr. L. Creplet; the double hardening of large steel forgings, by Mr. A. Pierrard; the metallographical examination of iron and steel, by Mr. H. Le Chatelier; and an apparatus for charging mercury furnaces so as to obviate the liberation of deleterious gases, by Mr. V. Spirek.

In the mining section, papers on shaft sinking were read by Messrs. Bodart, Portier, Tomson and Duvivier, and on winding engines by Mr. Henry. The use of superheated steam was dealt with by Mr. Weiss, and the use of steam accumulators by Messrs. Rateau and Chaleil. Modern pumping engines were described by Mr. Schulte, the De Laval high-lift centrifugal pump by Mr. Sosnowski, and the Sulzer high-lift centrifugal pump by Mr. Ziegler. The water-flush system of packing colliery workings was described by Mr. Jüngst and by Mr. Lafitte. Fire-damp detection was dealt with by Messrs. Chesneau, Watteyne, Stassart, and Daniel. Electric haulage was discussed by Messrs. Lapostolet, Halleux, and Henry; and the driving of the great adit-level from Gardanne to the sea was described by Mr. Domage. Altogether the programme was one of great interest, and the discussions on the papers were well sustained. The president of the congress was Mr. Alfred Habets, and the presidents of the sections were:—for metallurgy, Mr. A. Greiner, member of council of the Iron and Steel Institute; for mining, Mr. E. Harzé; for mechanics, Mr. Hubert; and for geology, Mr. Max Lohest. Among the honorary presidents of the sections who presided in turn were:—for metallurgy, Mr. R. A. Hadfield, president, and Mr. H. Bauerman, honorary member of the Iron and Steel Institute; and for mining, Mr. H. C. Peake, chairman of the Institution of Mining Engineers.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—The following is the text of the speech delivered by Prof. Love in presenting Prof. G. H. Darwin for the degree of D.Sc. *honoris causa* at the Encænia on June 28:—

Salutamus Georgium Howard Darwin, magni patris magnum filium, non solum inter astronomos insignissimum, sed, ut decebat tali patre ortum, quasi clavis repertorem qua altissima naturæ arcana reseraret. Ille quidem, Carolum dico, de vita animantium doctor insignissimus, ostenderat quo modo sensim immutata figura simplicioribus et rudioribus perfectiora animalia succederent; hic noster docuit quo modo ipsa mundi compages lentas mutationes subiret. Duces quidem in hac re secutus est Newtonum, Laplacium, Kelvinum, sed suis viribus fretus est magis. Quid enim? Omnia quæ de reciproco maris motu litteris tradita sunt ipse denuo pertractavit, siderum cælo decurrentium meatus summa diligentia et scientia amplissima investigavit: idem tenuissimo quoque et subtilissimo mathematicæ genere instructus, ingenio audaci et vegeto pollens, luculentissime ostendit quo nomine et nutu variæ maris agitationes tam multiplices gignantur: quod cum faceret id assecutus est ut terræ, lunæ, solis, planetarum primordia et vices satis clare adumbraret. In hoc viro agnoscimus hominem, dictu mirum, mundorum nascentium annales conscribentem.

CAMBRIDGE.—The Raymond Horton-Smith prize for 1905 has been awarded to Dr. W. L. H. Duckworth, of Jesus

College, for a thesis for the degree of M.D. entitled "On the Nature of Certain Anomalous Cases of Cerebral Development."

SUBJECT to the Enfield Council agreeing to contribute one-third of the total cost of the buildings and necessary alterations, it has been decided by the Middlesex County Council to acquire the Ediswan Institute, Ponders End, the object being to convert it into a technical institute for the eastern portion of Enfield, that suitable technical instruction may be given to those engaged in the Small Arms Factory, Enfield Lock, the works of the Edison and Swan Co., &c.

A NEW movement for the encouragement of tropical research has been inaugurated in connection with the University of Liverpool. The school of research, of which Lord Mountmorres is to be the first director, will seek in every way to inquire into the natural resources of the tropical possessions of the Empire. Sir Alfred Jones, of the Elder-Dempster line of steamers, has promised to contribute 1000l. a year for four years towards the expenses of the movement.

ACCORDING to *Science*, the following appointments have recently been made in America:—Dr. A. W. Harris, president of North-western University; Dr. C. H. Smyth, professor of geology at Princeton University; Dr. N. Senn, professor of surgery, and Dr. F. Billings, professor of medicine, at the University of Chicago; Dr. H. K. Wolfe, professor of philosophy and education at the University of Montana; Mr. I. E. Wallin, professor of natural history in Upsala College, New Orange, N.J.

THE department of general pathology and bacteriology of King's College, London, announces a course in clinical and practical bacteriology suited to the requirements of medical practitioners and senior students. The course, which will begin on July 26 and end on August 5, will consist of lectures, demonstrations, and practical work. In connection with the same department there will be from July 27 to August 4 a vacation course in clinical pathology consisting of demonstrations and practical work. Further particulars may be obtained from Prof. Hewlett or the secretary of the college.

DURING the coming session courses of general and experimental psychology will be held at King's College, London. During the first and second terms Prof. Caldecott will deliver a series of lectures on general psychology. Prof. W. D. Halliburton, F.R.S., will lecture during the first term on the general structure and histology of the nervous system and of the organs of sense. During the second and third terms lectures on experimental psychology, accompanied by demonstrations and laboratory work, will be given by Dr. C. S. Myers in the new psychological laboratory. A departmental library has been opened at the college containing the principal English and foreign books and journals devoted to psychology.

THE Department of Agriculture and Technical Instruction for Ireland has issued its regulations and syllabuses to guide the teaching of science in Irish day secondary schools for the session 1905-6. The complete conditions regarding regulations for grants, qualifications of teachers, syllabuses of subjects, and a list of official forms are now issued in a single volume. The regulations are materially the same as those which were in force during last session. Some few syllabuses have been modified in the light of the experience gained in the last two years. It is announced that the summer courses for teachers will be continued as heretofore, but it is hoped they will, after 1908, develop into "post-graduate courses on special subjects for those already qualified."

THE British University Students' Congress met on June 28 at University College. All the universities of the United Kingdom were represented except Oxford and Cambridge, these having no organisation which can send delegates to represent their undergraduates generally. The report of the subcommittee appointed last year to consider the question of residential halls at home and abroad was presented. Fourteen British universities and colleges,